

## **Linguistic sibling rivalry: Mutual interference between Portuguese and Spanish**

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### **Author Note**

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### **Abstract**

The main objectives of this study were to better understand the bi-directional Spanish-Portuguese interference that might occur during the Portuguese language acquisition process, and especially how the level of prior Spanish fluency might impact that interference. Student translations (English to Spanish and English to Portuguese) and student attitudes were collected across a semester in an accelerated Portuguese class specifically designed for students with a background in Spanish. Our results indicate that, although more fluent Spanish speakers believed learning Portuguese would be easier than did the less fluent students, their acquisition of Portuguese was not systematically better than those who were less fluent in Spanish. However, those with less fluency in Spanish did show increasing interference from Portuguese in their Spanish as the semester progressed, while those who were very fluent in Spanish did not show interference from Portuguese. The project also allowed us to highlight specific words and patterns that teachers may want to emphasize to the students in the beginning of their study of the Portuguese language to avoid the formation of bad habits.

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### **Introduction**

Scholars suggest that instructors can confidently immerse Spanish speakers into Portuguese early on without overwhelming students. However, despite the close similarity between Spanish and Portuguese, acquiring both languages well can be a challenging process. The very similarity that initially helps students acquire one language after learning the other can create linguistic difficulties that hinder more advanced speakers. The scholar Milton Azevedo has written several articles in regard to the interference of Spanish when speaking Portuguese. He comments that in some cases transfer is warranted and should be encouraged as a helpful short cut toward mastery of the target language; in many cases, however, transfer is not justified, and

if it occurs, negative influence is likely to manifest itself, disturbing the learner communicative fluency (Azevedo, 1978). While several scholarly studies have pointed out these challenges, few have systematically studied how the level of Spanish fluency impacts the learning of Portuguese for Spanish speakers.

Beginning in 2010, the Air Force Academy has offered an accelerated Portuguese class specifically designed for students with a background in Spanish. Students enrolled in the course vary in their level of proficiency, from having a few years in high school to being native speakers. Thus, this course presents a unique opportunity to study the mutual interference that the two languages exert upon each other in a classroom setting, and to investigate how proficiency plays a role in that interference.

More specifically, we studied the bi-directional interference between both Romance languages: Spanish interference with the acquisition of Portuguese, and Portuguese interference with previously learned Spanish. Based on prior research by Milton Azevedo, Ismênia de Souza, John Jensen, John Lipski among others, we focused on previously identified types of interference between Spanish and Portuguese, for example, cognates with minor differences (e.g. *pergunta* vs. *pregunta*), false cognates (e.g. *oficina* vs. *escritório*), and small grammatical nuances that differ in both Spanish and Portuguese (*estou com frio* vs. *tengo frio*).

It is important to note, however, that prior knowledge of Spanish might influence Portuguese acquisition in ways other than linguistic interference. Based on observations of students learning Portuguese during prior semesters, we believed that level of Spanish proficiency also influences attitudes such as self-efficacy toward learning Portuguese. Self-efficacy involves the assessment of what is required to be successful for a learning task, along with a personal assessment of the abilities one currently has that pertain to accomplishing that

task. The results of these assessments can in turn influence motivation and learning behaviors. In his review of the literature on self-efficacy and learning achievement, Schunck (1989) suggested that, while students with high efficacy tended to better monitor their learning and persist in the face of failure, there were also times when high self-efficacy led to lower persistence, as high self-efficacy students often believe that they should be able to finish a task more easily and quickly than other students. Because some skill learning tasks are complex (e.g. acquisition of a new language involves vocabulary, syntax, understanding of cultural nuances), students may not accurately self-assess their ability across all components, and thus, they may form inaccurate impressions of the amount of effort they will need to give in order to achieve development of that skill. Therefore, in our study, we included a simple measure of self-efficacy so that we could investigate how it related to performance and learning behaviors.

Also related to self-awareness of learning is the intentional versus unintentional use of substitutions between Spanish and Portuguese (Azevedo, 1978). Observations of prior students as well as the personal experience of one of the authors suggested that, because of the similarities between the languages, substitutions often lead to successful communication of the speaker's intention. However, while insertions may often facilitate communication, they may also serve as a crutch and slow the learning of Portuguese, especially for those individuals with greater levels of Spanish fluency. We will investigate if the use of intentional and unintentional substitutions varies across speakers who have different levels of Spanish proficiency.

In sum, the main objective of this study is to enhance understanding of the language acquisition process, specifically with respect to how the level of prior Spanish fluency impacts the learning of Portuguese. By examining the bi-directional interference between the two Romance languages we hope to replicate and extend prior research that identifies words and

phrases having the highest degree of code-switching. Importantly, we will add to the literature by investigating whether or not students with varying levels of Spanish proficiency show different types and amounts of interference, whether those differences vary over time as students learn more Portuguese, and whether the different Spanish proficiency groups show different attitudes and awareness of intentional and unintentional substitutions. Based on the literature and our prior informal observations, we hypothesized that 1) students with high levels of Spanish proficiency would believe that learning Portuguese would be easier than their classmates who have less prior exposure to Spanish, 2) that students with higher levels of Spanish proficiency would learn Portuguese more quickly, i.e. show higher scores on tests, and 3) despite learning more quickly, those with higher levels of proficiency would make more interference-induced code switching errors due to their Spanish background.

## **Method**

### ***Participants***

Participants were all students enrolled in two sections of the Portuguese for Spanish Speakers course, (N=16 and N=18). Seven students reported being native speakers of Spanish, in using the self-report feedback form at the beginning of the semester (described below), 11 students claimed to not be fluent in Spanish, 15 students claimed to be moderately fluent, and 8 students claimed to be very fluent.

### ***Materials***

Two types of materials were used to collect both quantitative and qualitative data: a Spanish Ability Worksheet and Attitude Feedback Form, and Portuguese Exam Review Sheets. At the top of each was a space for students to indicate a personally-chosen code so that data could be linked while allowing the participant to remain anonymous.

In the first section of the Spanish Ability Worksheet and Attitude Feedback Form there were three questions about fluency: how many years of Spanish instruction they had taken prior to taking Portuguese, their level of fluency in Spanish (not fluent, moderately fluent, very fluent), and whether or not they were a native speaker. The second section included a short exercise where they translated Basic English words and phrases into Spanish. The specific words / phrases on the form were chosen to fall in one of the following categories: examples of words that are exactly the same in both languages, examples of false cognates, examples of cognates with minor differences, and examples containing grammatical nuances that differ between Spanish and Portuguese. The third section assessed student attitudes about the impact of knowing Spanish when learning Portuguese. These questions asked about perceived influence of prior knowledge on ease of learning Portuguese, and perceived intentional and unintentional use of Spanish when communicating in Portuguese. The attitude questions each had 6-point Likert scale response options, (strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, and strongly agree).

The Portuguese Exam Review Sheets were half-page review quizzes that contained material from the current lessons that was often confused with Spanish. They included a small number of conjugations, a translation from English to Portuguese, and an open-ended short essay question.

### ***Procedure***

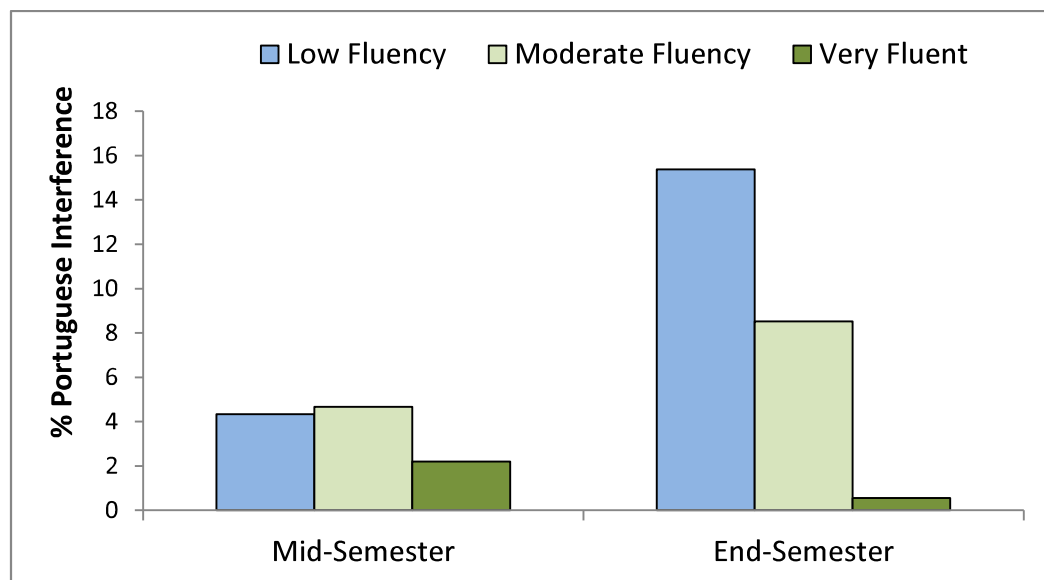
Each section of the course met every weekday for 52 minutes. One of the authors was a senior-level student participating in an independent research course who attended every lesson of one section of the course, and several lessons of the second section of the course. The Spanish Ability worksheet was given in-class to students one third through the semester and at the end of

the semester, but the Attitude Feedback questions were not included at the end of the semester. The Portuguese Exam Review sheets were given in class to students five times throughout the semester, each time during the lesson prior to the exams. The answers to these review quizzes were discussed in class after the students completed the sheets, and then they were collected by the instructor.

## Results

*Quantitative Data:* Before scoring the exercises on the Spanish Ability Worksheets and the Portuguese Exam Reviews, specific areas were identified that would be scored. For instance, if we were looking at the sentence “The dog ran to the store” we had columns for “correct use of dog,” “correct use of the verb ‘to run’” and “correct use of preposition ‘to.’” For each question identified, it would be scored as “C” for correct or “W” for wrong, and “P” or “S” if there was interference present from the language that was not being tested at the time.

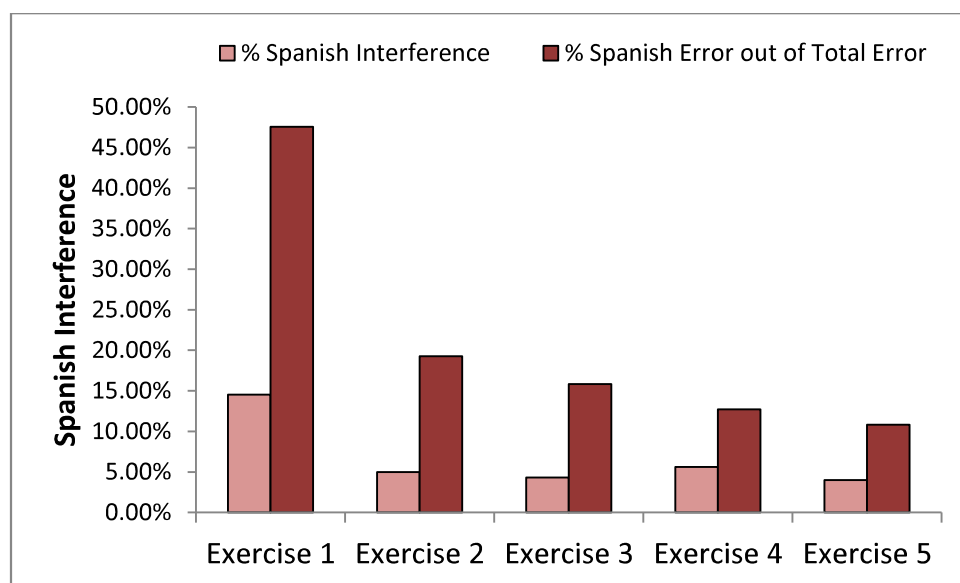
A 2 (mid versus end-of-semester) x 3 (Fluency group: low, med, high) mixed analysis of variance (ANOVA) was performed for the number of Portuguese intrusions on Spanish when completing English-to-Spanish translations (see Figure 1). Overall, there was a significant increase in the number of errors from mid-semester (mean = 3.98%) to end-of-semester (mean = 8.49%),  $F(2, 26) = 8.41, p < .01$ , and as Spanish fluency increased, the number of errors decreased (means: low fluency = 9.86, moderate fluency = 6.59, very fluent = 1.37),  $F(1, 26) = 7.27, p = .01$ . However, these main effects were moderated by a significant interaction,  $F(2, 26) = 3.79, p = .04$ . At mid-semester, the level of Portuguese interference was roughly equal for all three groups, but by the end of the semester, the very fluent group showed a slight decrease in interference, while the other two groups showed increasing interference, with the low frequency group showing the largest increase.



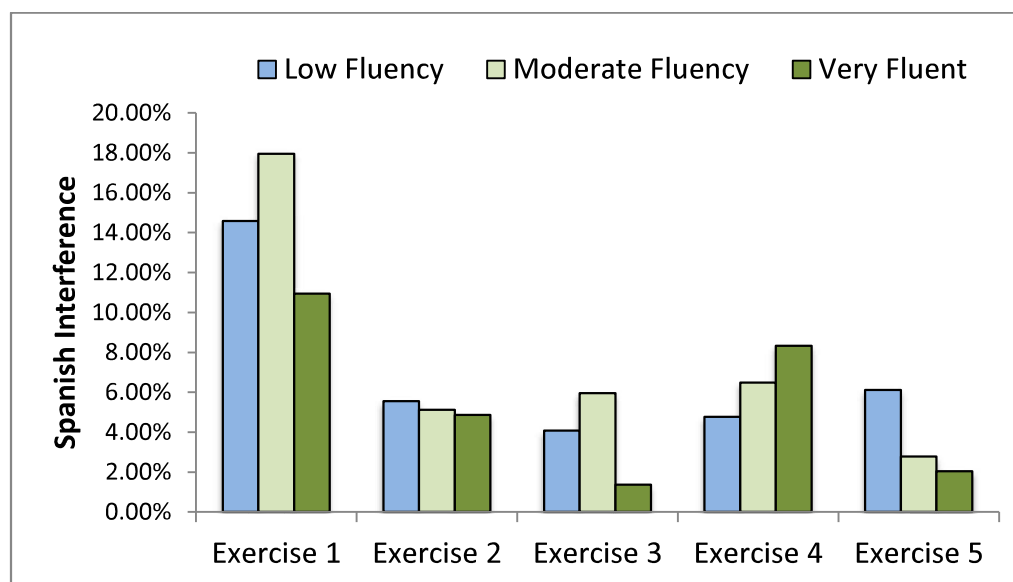
**Figure 1: Portuguese interference on English-to-Spanish translations for each of the fluency groups. By the end of the semester, the students who self-reported high Spanish fluency showed very few Portuguese intrusions in their Spanish, with increasing amounts of interference as prior level of Spanish fluency decreased.**

The Portuguese Exam Review Sheets allowed us to examine the amount of Spanish interference when students were supposed to be responding in Portuguese. Figure 2 shows the amount of Spanish interference on Portuguese recall across five review sheet exercises throughout the semester. The pink bars show the % of points lost to Spanish interference out of total possible points, and the red bars show the % of the total errors that were Spanish errors versus some other type of error (e.g. syntax, spelling). As demonstrated, the number of errors decreased over time, with an especially large early decrease in the % Spanish errors compared to total errors, i.e. across the semester fewer and fewer errors on the exercises were due to the intrusion of Spanish. Because the first of these exercises didn't occur until one third through the semester, it is possible that earlier in the semester the percentage of Spanish errors would have been even higher. As can be seen in Figure 3, the level of Spanish fluency did not affect this pattern in any systematic way. However, because students did not systematically use consistent

personal identification numbers on these worksheets, we were unable to link the data and perform analyses.



**Figure 2: Spanish interference with Portuguese over time.** Pink bars represent the % of points lost due to Spanish interference out of total possible points, and red bars indicate the % of the total errors that were Spanish errors versus some other type of error (e.g. syntax, spelling).



**Figure 3: Average % Spanish in the Portuguese exercises over time for the three fluency groups.** There is no systematic trend that can be derived from this data.



Responses to the Portuguese Exam Review Sheet allowed us to determine the most commonly confused words and constructions (see Table 1). The % interference numbers shown in Table 1 were calculated by the total percent of times students used the Spanish equivalent in five review quizzes throughout the semester. Words with very low confusion rates are not shown in the table. In a small number of cases, the commonly confused words or phrases were quizzed more than once in the semester. Notice that words and phrases often practiced in class (e.g. eu gosto, escola) showed a decrease in interference over time, while less frequently reviewed vocabulary words (e.g. praia) showed increased interference as they were not practiced as often after the first time they were introduced and quizzed. The professors were sensitive to patterns of interference in the more frequently reviewed phrases, and were able to adjust the lesson plans to better help the students in regard to these words. However, they were less sensitive to interference occurring for vocabulary words that were treated in a more isolated manner. Thus, while some of the words and phrases in Table 1 have commonly been recognized by instructors, these data provide additional insights to guide professors as they work with Spanish-speaking students in the acquisition of Portuguese.

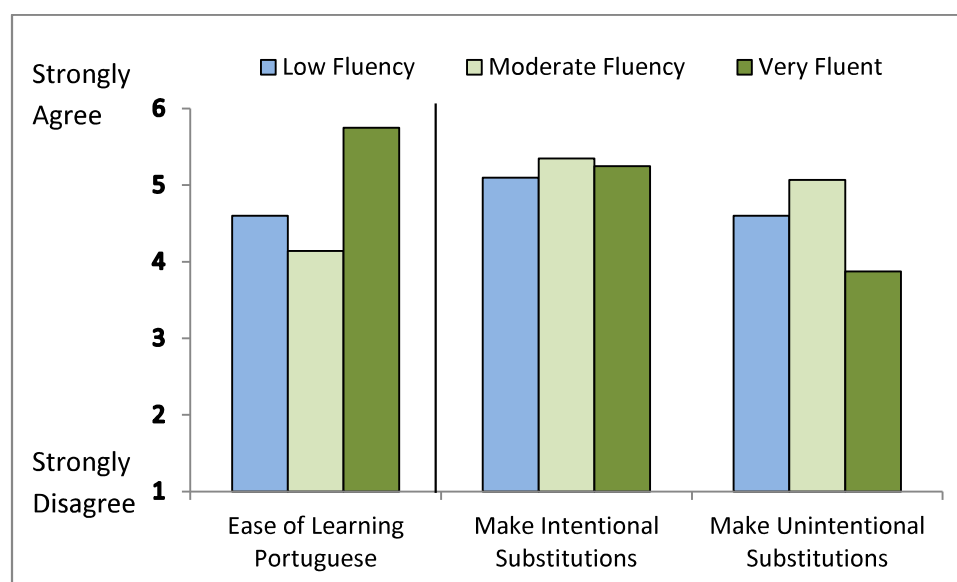
**Table 1: Portuguese words and phrases that showed the highest levels of Spanish interference during the study, organized by amount of interference.**

Portuguese equivalent	Review Quiz (1-5)	Spanish equivalent	% interference
<b>gostar+de</b>	<b>1</b>	<b>gustar + infinitive</b>	<b>74.19%</b>
<b>eu gosto</b>	<b>1</b>	<b>me gusta</b>	<b>51.61%</b>
<b>mas</b>	<b>1</b>	<b>pero</b>	<b>45.16%</b>
<b>ajude</b>	<b>3</b>	<b>ayude</b>	<b>45.16%</b>

<b>pergunta</b>	<b>1</b>	<b>pregunta</b>	<b>41.94%</b>
<b>gostar</b>	<b>1</b>	<b>gustar</b>	<b>41.94%</b>
<b>jogar</b>	<b>1</b>	<b>jugar</b>	<b>38.71%</b>
<b>esta com (fome)</b>	<b>4</b>	<b>tiene (hambre etc)</b>	<b>38.71%</b>
<b>praia</b>	<b>5</b>	<b>playa</b>	<b>32.26%</b>
<b>cabeça</b>	<b>4</b>	<b>cabeza</b>	<b>25.81%</b>
<b>eu gosto</b>	<b>5</b>	<b>me gusta</b>	<b>22.58%</b>
<b>escola</b>	<b>3</b>	<b>escuela</b>	<b>22.58%</b>
<b>temos</b>	<b>2</b>	<b>tenemos</b>	<b>20.69%</b>
<b>vão</b>	<b>2</b>	<b>van</b>	<b>20.69%</b>
<b>em + o = no</b>	<b>2</b>	<b>en el</b>	<b>17.24%</b>
<b>praia</b>	<b>1</b>	<b>playa</b>	<b>16.13%</b>
<b>Março</b>	<b>2</b>	<b>marzo</b>	<b>13.79%</b>
<b>estou com (4)</b>	<b>4</b>	<b>tengo ...</b>	<b>9.68%</b>
<b>escola</b>	<b>5</b>	<b>escuela</b>	<b>9.68%</b>
<b>durma</b>	<b>3</b>	<b>duerma</b>	<b>9.68%</b>

Finally, the self-reported attitude data from the first Spanish Activity Worksheet and Attitude Feedback form was examined for trends based on level of Spanish fluency. Figure 4 shows that, relatively early in the semester, the very fluent Spanish speakers believed that it would be easier to learn Portuguese than the other fluency groups, ( $F(2)=6.49$ ,  $p=.005$ ), while the two other fluency groups were not different from each other. A two (type of substitution: intentional versus unintentional) x 3 (fluency group) mixed ANOVA showed that all three groups reported making more intentional than non-intentional substitutions ( $F(1) = 4.81$ ,

$p=.037$ ), but that they did not significantly differ across groups, although there is a slight trend for the very fluent Spanish speakers to less strongly agree that they unconsciously inserted Spanish words when speaking Portuguese.



**Figure 4: Self-reported attitudes based on level of Spanish fluency.**

### Interpretation of Findings

The mutual interference between Spanish and Portuguese changed across the duration of the course, with some differences based on level of prior Spanish fluency. Overall, the amount of Spanish interference in Portuguese showed a decrease across the semester as shown in Figure 2, with no systematic difference based on fluency group. Though students continued to insert Spanish when they were supposed to be responding in Portuguese, these errors decreased as a percentage of total errors. This shift indicates that the students became more and more cognizant of the interference between Spanish and Portuguese over the duration of the course. It is reasonable to conclude that the level of Spanish interference diminished during the semester partly because most of the students were not being exposed to any additional language training in Spanish. Thus, the acquisition of the target language (Portuguese) began to improve, fostering

confidence and awareness of the different nuances as regards the two languages. In contrast, while the overall Portuguese influence on Spanish increased throughout the course, the significant interaction showed that it did so only for intermediate and beginning Spanish speakers. The previously fluent Spanish speakers actually showed a slight decrease in interference, suggesting that those fluent in the Spanish language were more resistant to the target language (Portuguese) interference because of their proficiency and abilities in the Spanish language.

As mentioned above, one of our goals was to study the students' attitudes and perspectives in regard to the acquisition of the Portuguese Language. It is common for many Spanish speakers to perceive the learning of Portuguese to be an easy task due to the assumed similarities in the two languages. Our students also indicated this attitude, with the most advanced Spanish speakers showing significantly more confidence in acquisition of the Portuguese language. Further, all three fluency groups reported similar tendencies to intentionally and unintentionally insert Spanish when they did not know how to say something in Portuguese. What might be the advantages and disadvantages of such attitudes regarding language acquisition? While self-efficacy is often correlated with academic achievement (e.g. Zimmerman, 2000), our results support the potential negative effects suggested Schunk (1989). More specifically, our observations during class suggest that the advanced Spanish speakers did not always apply themselves as much, most likely due to their assumption about the ease of learning Portuguese. Our performance measures emphasize the fact that Spanish fluency does not necessarily provide an advantage in the acquisition of Portuguese (see Figure 3). On some exercises the fluent Spanish speakers showed a lower likelihood to insert Spanish when working in Portuguese, while on other exercises they showed as many or more insertions. We cannot

determine which of the errors were due to intentional versus unintentional error; however, this lack of systematic effect shows that, although fluent Spanish speakers are more confident, they do not necessarily make fewer errors than their counterparts.

## **Conclusion**

As mentioned above, the main objectives of this study were to better understand bi-directional language interference during the language acquisition process. We believe the current results provide a foundation for further investigation of how prior levels of Spanish fluency might impact the acquisition of Portuguese. For example, our results highlight specific words and patterns that teachers may want to emphasize to Spanish-speaking students in the beginning of their study of the Portuguese language to avoid the formation of bad habits (whether intentional or non-intentional). Our results also suggest that prior level of Spanish fluency impacts bi-directional interference differently, depending upon whether it is Spanish interfering with Portuguese, or vice versa. More specifically, prior level of Spanish fluency did not systematically impact the amount of Spanish interference when translating English to Portuguese. However, the lower the level of prior Spanish fluency, the greater the increase in Portuguese interference with Spanish as the semester progressed. Very fluent Spanish speakers showed very little interference from Portuguese.

Also important to note are the significantly different attitudes shown by students with different levels of prior Spanish ability. Those who were most fluent indicated the strongest assumptions that learning Portuguese would be easy; however, their actual performance was not systematically better than those with lower levels of Spanish. Thus, instructors should be mindful that such assumptions are not always well founded, and they should encourage all students to apply themselves to the learning process.

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